KEYENCE iO-GRID m and KV-Nano Series Modbus RTU Connection Instruction Manual

Contents

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2302EN V2.0.0 and KV-Nano Series Modbus RTU Connection Operating Manual

Remote I/O Module System Configuration List

The following table shows the specifications and descriptions of the remote I/O module system components:

Part No.	Specification	Description
GFMS-RM01S	Master Modbus RTU, 1 Port	Main Controller
GFDI-RM01N	Digital Input 16 Channel	Digital Input
GFDO-RM01N	Digital Output 16 Channel / 0.5A	Digital Output
GFPS-0202	Power 24V / 48W	Power Supply
GFPS-0303	Power 5V / 20W	Power Supply
0170-0101	8 pin RJ45 female connector/RS-485 Interface	Interface Module

Product Description

The remote I/O system consists of a main controller (GFMS-RM01S), digital input module (GFDI-RM01N), digital output module (GFDO-RM01N), power supply modules (GFPS-0202 and GFPS-0303), and an interface module (0170-0101). The interface module is used externally to convert KV-NC20L's communication module (Modbus RTU) to a RJ45 connector. The main controller manages and dynamically configures I/O parameters. Users can choose the model or brand of power module and interface module they prefer.

KV-NC32T Connection Setup

This section explains how to connect the KV-NC32T using KV STUDIO software. For more details, refer to the KV Nano Series Communication Functions Manual.

KV-NC32T Hardware Connection
To connect the KV-NC32T, follow these steps:

1. The connector is at the bottom of the KV-NC20L communication module and uses RS485 connections.

2. Connect the COM (RS485 A/B) on the left of the FX5U to the interface module (1/2) to convert them to RJ45 connectors before connecting them to the main controller.

KV-NC32T Connection Setup

To set up the KV-NC32T connection:

1. Launch KV STUDIO and click on Unit Configuration on the left. Select KV-NC32.
2. Under Communication Settings, select KV-NC20L.
3. Use Port 2.
4. For Action Mode, select Modbus Master
   Interface: RS-485 (2-wire)
   Baud: Select 115200bps Stop
   Bit: 1 Parity
   Bit: None. Note that the communication format setting must be consistent with the connected device.
5. Program your communication.

Programming Example: Control with one GFDI-RM01N and one GFDO-RM01N

When DM0.0 receives a signal and is triggered, DM1000.0 outputs a signal as it is connected.

Remote I/O Module System Configuration List

Part No.	Specification	Description
GFMS-RM01S	Master Modbus RTU, 1 Port	Main Controller
GFDI-RM01N	Digital Input 16 Channel	Digital Input
GFDO-RM01N	Digital Output 16 Channel / 0.5A	Digital Output
GFPS-0202	Power 24V / 48W	Power Supply
GFPS-0303	Power 5V / 20W	Power Supply
0170-0101	8 pin RJ45 female connector/RS-485 Interface	Interface Module

Product Description

1. The interface module is used externally to convert KV-NC20L's communication module (Modbus RTU) to a RJ45 connector
2. The main controller is in charge of the management and dynamic configuration of I/O parameters and so on.
3. The power module and interface module are standard for remote I/Os and users can choose the model or brand they prefer.

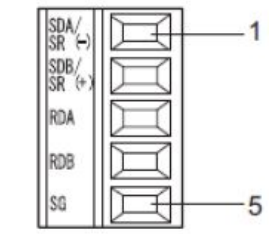
KV-NC32T Connection Setup

This section details how to use the KV STUDIO software to connect KV-NC32T and iO-GRID M.

For more details, please refer to the KV Nano Series Communication Functions Manual

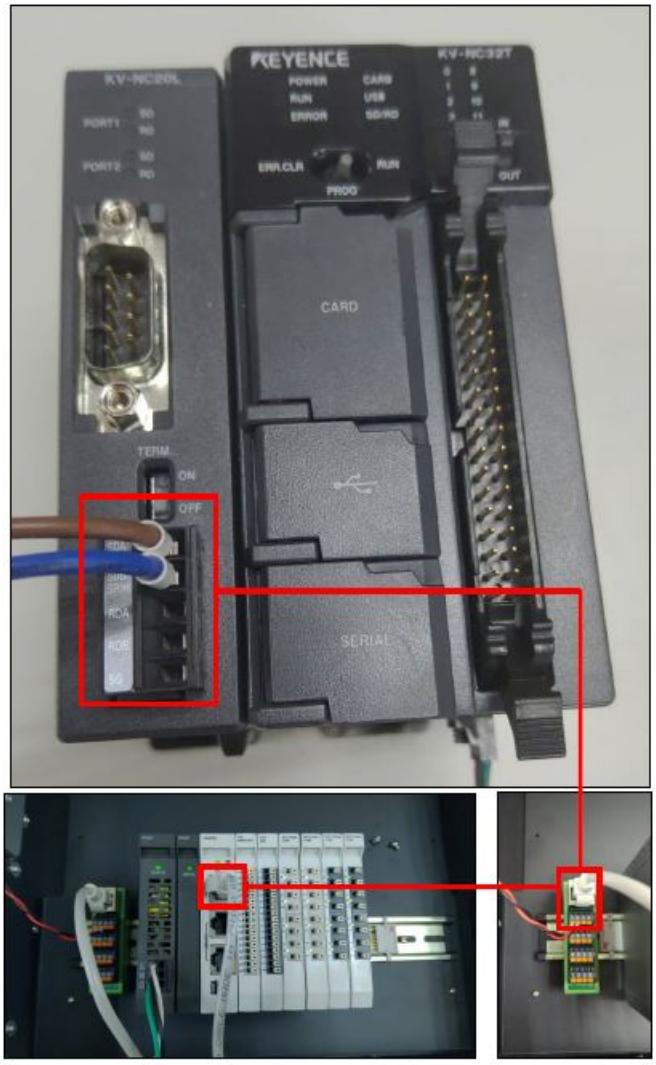
KV-NC32T Hardware Connection

1. The connector is at the bottom of the KV-NC20L communication module and uses RS485 connections



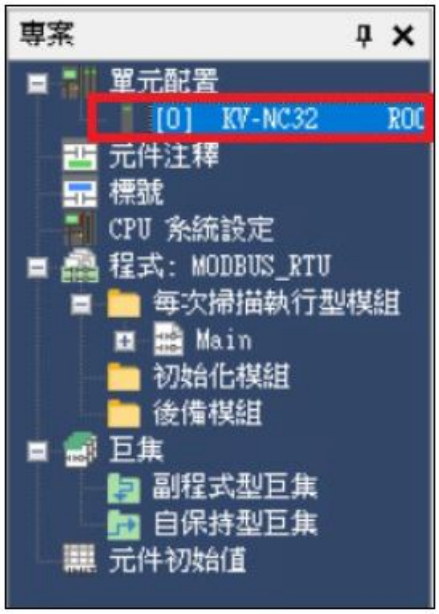
RS-485 (2 線制)	
信號	方向
S/R (-)	-
S/R (+)	-
-	-
-	-
SG	-

2. Connect the COM (RS485 A/B) on the left of the FX5U to the interface module (1/2) to convert them to RJ45 connectors before connecting them to the main controller

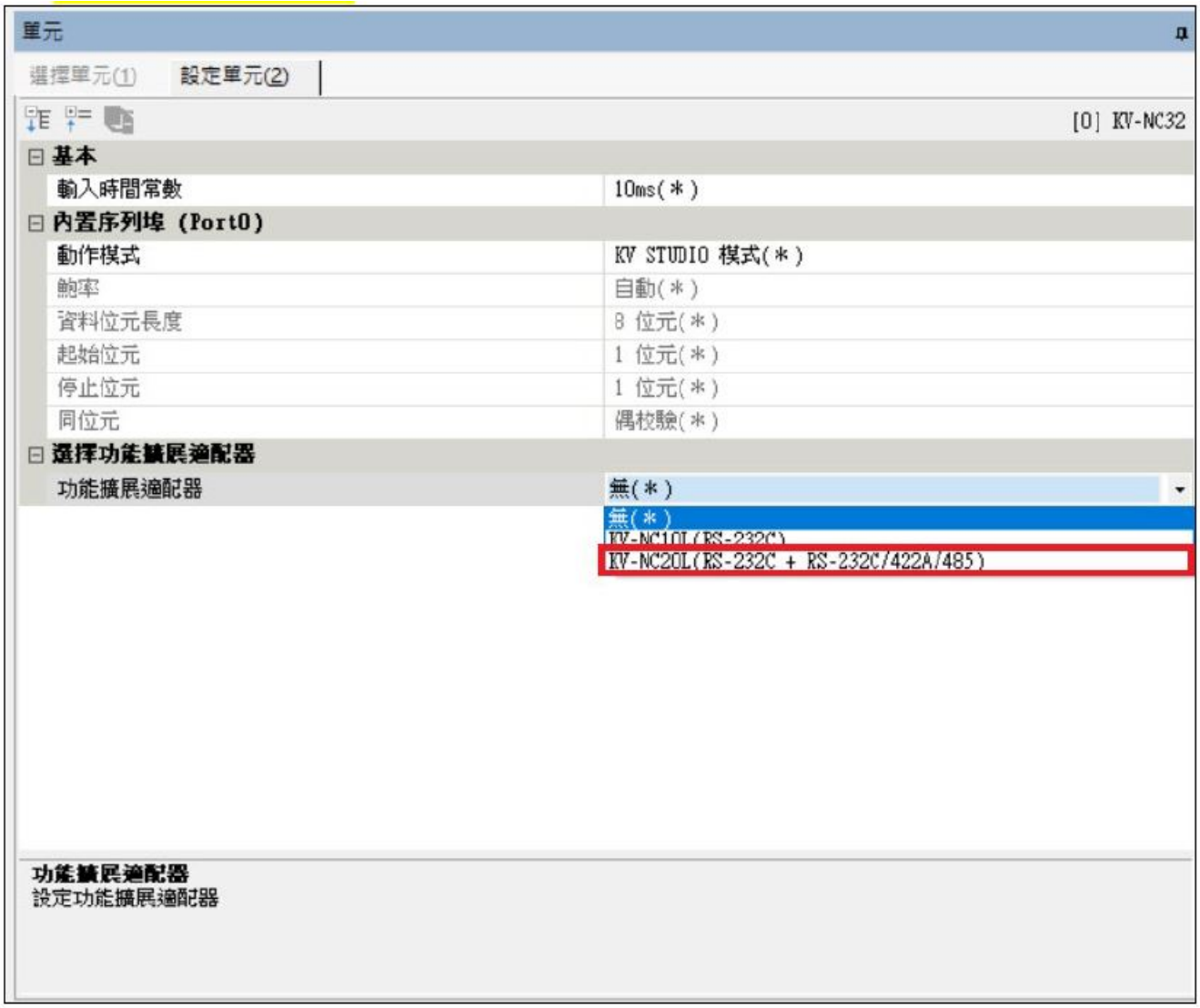


KV-NC32T Connection Setup

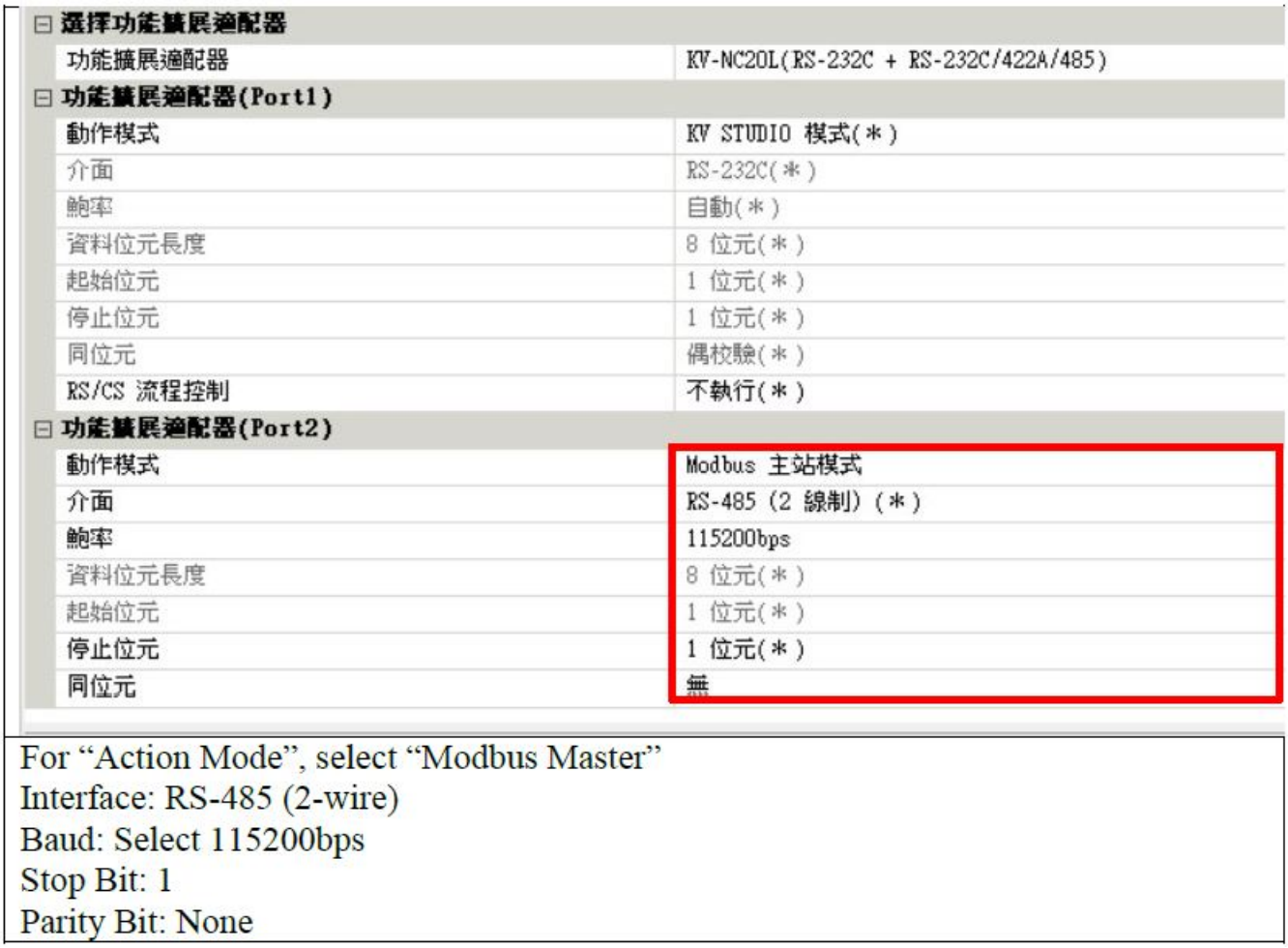
1. Launch KV STUDIO, click on “Unit Configuration” on the left and select “KV-NC32”



2. Under “ ”, select “KV-NC20L”



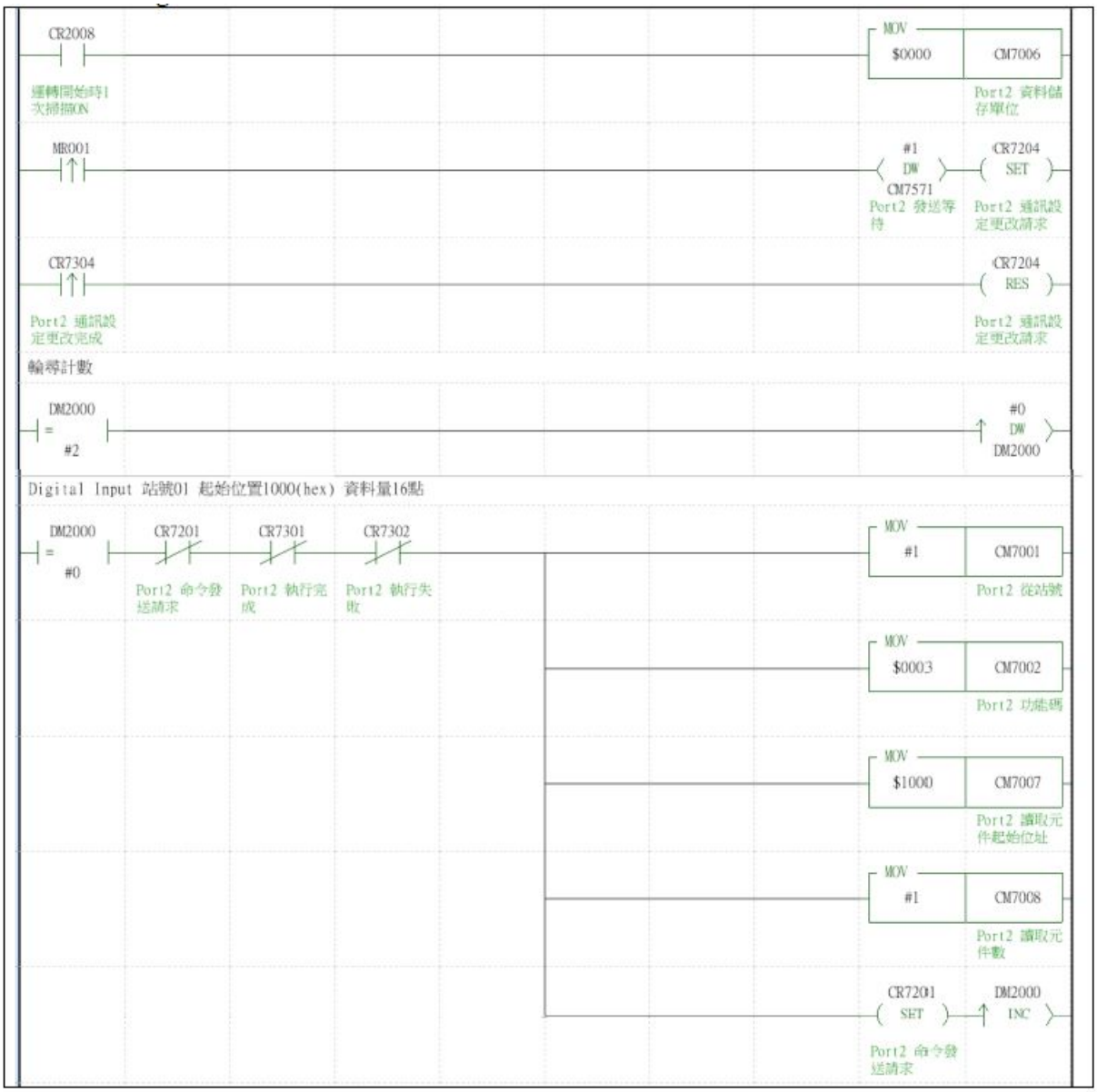
3. Use Port 2 here

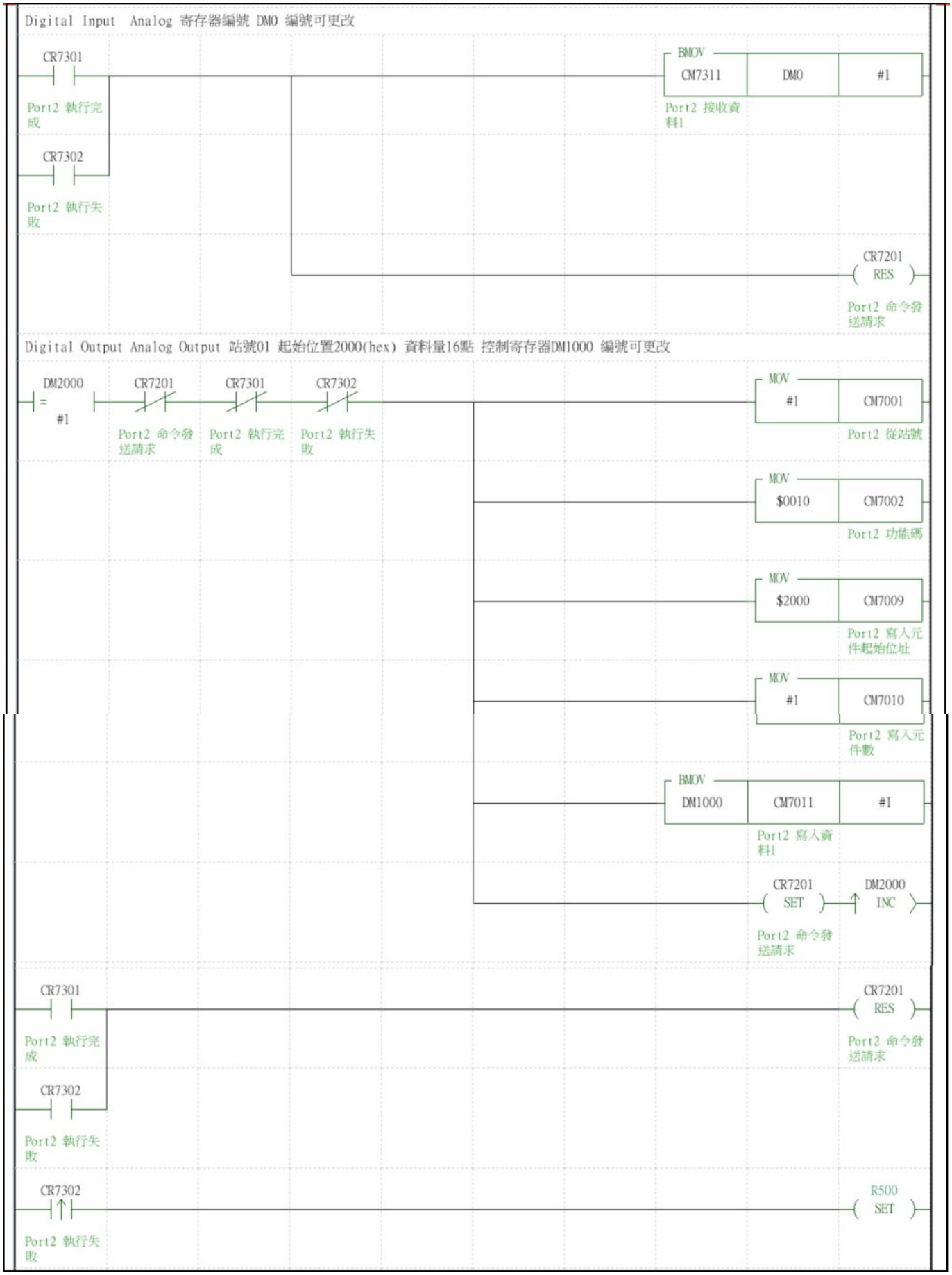


For “Action Mode”, select “Modbus Master”
Interface: RS-485 (2-wire)
Baud: Select 115200bps
Stop Bit: 1
Parity Bit: None

Notes:
The communication format setting must be consistent with

Program Your Communication

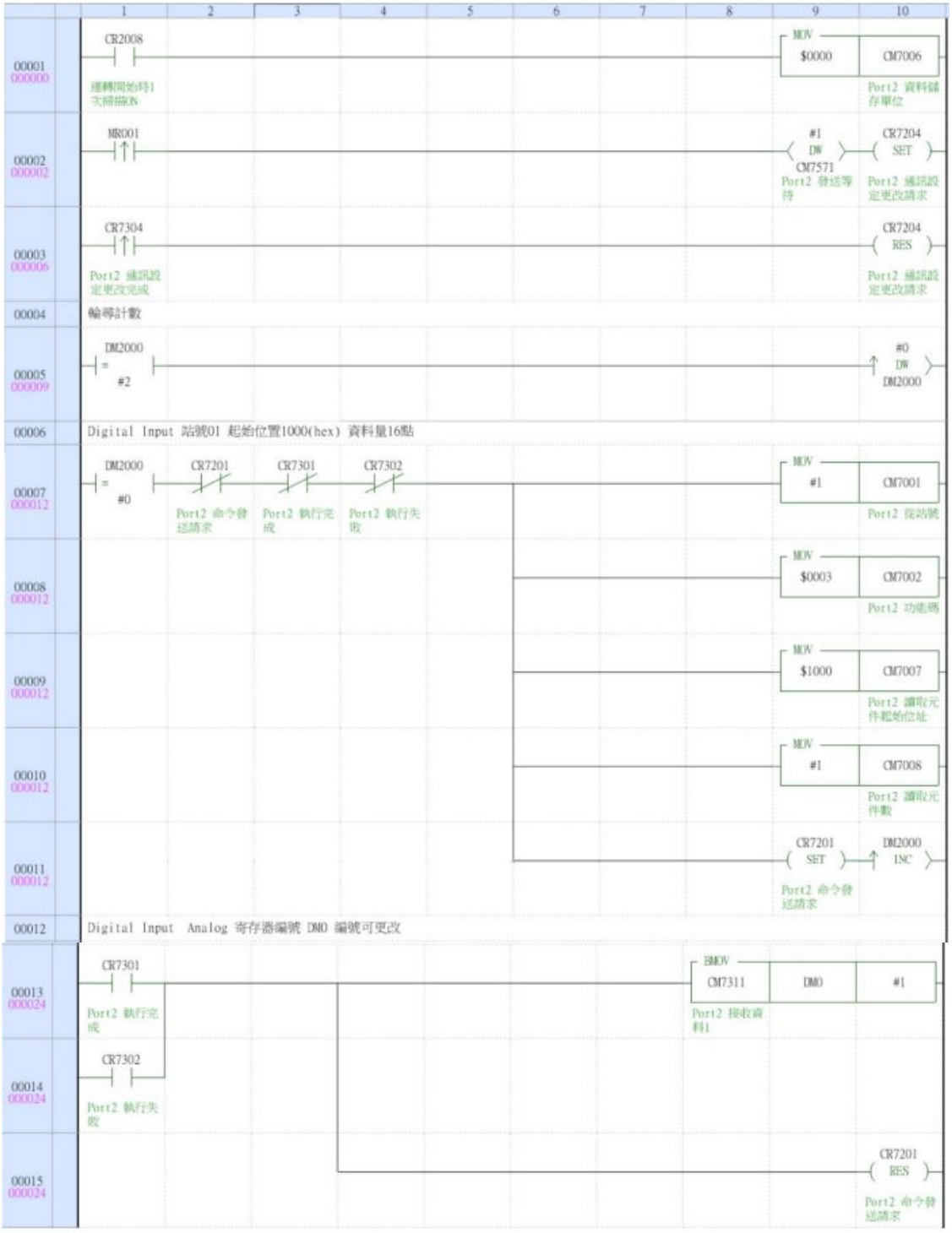

CR2008
運轉開始時1次掃描ON
MOV
$0000
CM7006
Port2 資料儲存單位
MR001
#1
DW
CM7571
Port2 發送等待
CR7204
SET
Port2 通訊設定更改請求
CR7304
Port2 通訊設定更改完成
CR7204
RES
Port2 通訊設定更改請求
輪尋計數
DM2000
=
#2
#0
DW
DM2000
Digital Input 站號01 起始位置1000(hex) 資料量16點
DM2000
=
#0
CR7201
Port2 命令發送請求
CR7301
Port2 執行完成
CR7302
Port2 執行失敗
MOV
#1
CM7001
Port2 從站號
MOV
$0003
CM7002
Port2 功能碼
MOV
$1000
CM7007
Port2 讀取元件起始位址
MOV
#1
CM7008
Port2 讀取元件數
CR7201
SET
Port2 命令發送請求
DM2000
INC

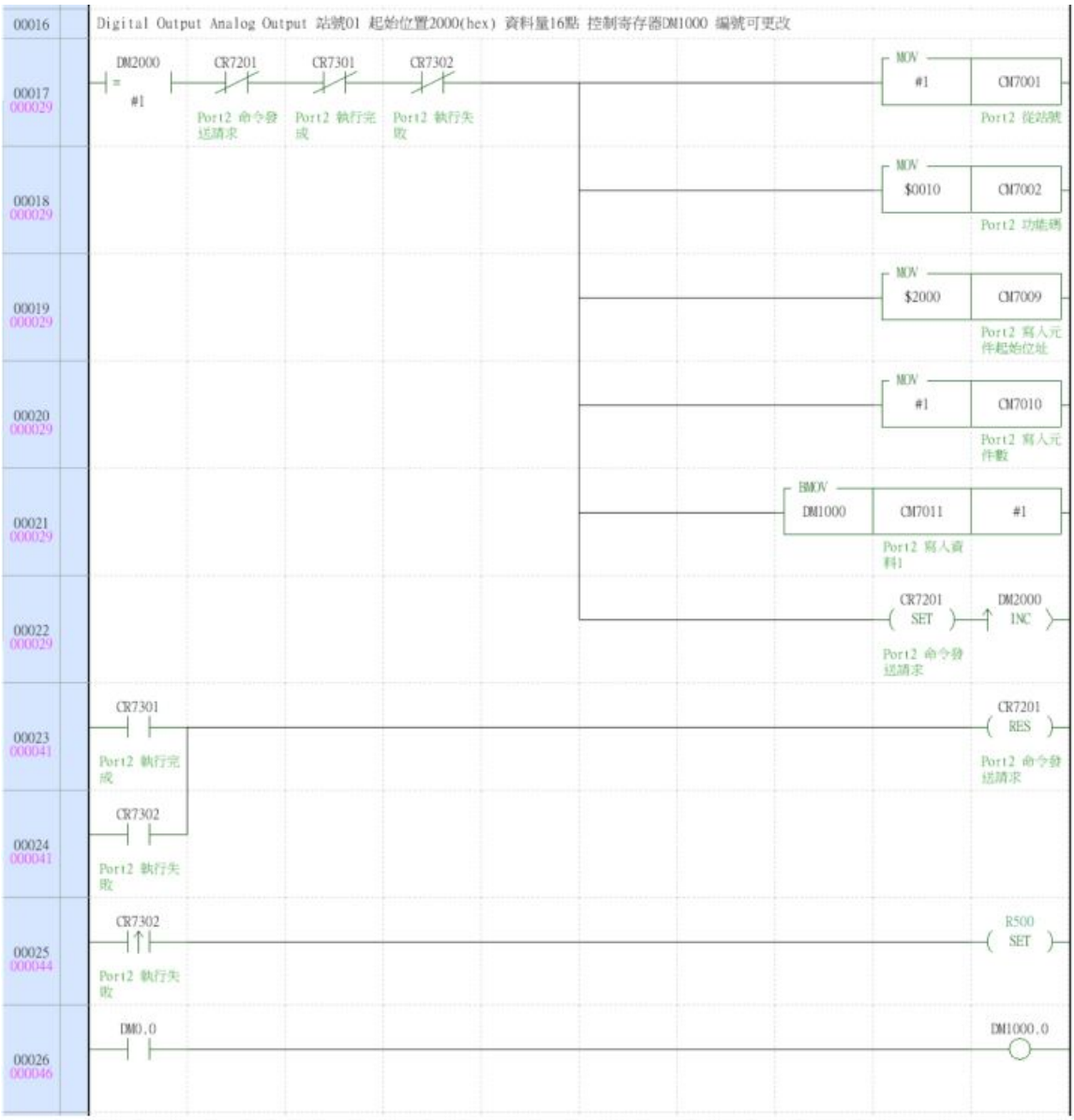


Programming Example:

Control with one GFDI-RM01N and one GFDO-RM01N

When DM0.0 has received a signal and is triggered, DM1000.0 will output a signal as it is connected


00001
000000
CR2008
連轉開始時1次掃描ON
MOV
$0000
CM7006
Port2 資料儲存單位
00002
000002
MR001
#1
DW
CM7571
Port2 發送等待
CR7204
SET
Port2 通訊設定更改請求
00003
000006
CR7304
Port2 通訊設定更改完成
CR7204
RES
Port2 通訊設定更改請求
00004
輪尋計數
00005
000009
DM2000
=
#2
#0
DW
DM2000
00006
Digital Input 站號01 起始位置1000(hex) 資料量16點
00007
000012
DM2000
=
#0
CR7201
Port2 命令發送請求
CR7301
Port2 執行完成
CR7302
Port2 執行失敗
MOV
#1
CM7001
Port2 從站號
00008
000012
MOV
$0003
CM7002
Port2 功能碼
00009
000012
MOV
$1000
CM7007
Port2 讀取元件起始位址
00010
000012
MOV
#1
CM7008
Port2 讀取元件數
00011
000012
CR7201
SET
DM2000
INC
Port2 命令發送請求
00012
Digital Input Analog 寄存器編號 DM0 編號可更改
00013
000024
CR7301
Port2 執行完成
BMOV
CM7311
DM0
#1
Port2 接收資料1
00014
000024
CR7302
Port2 執行失敗
00015
000024
CR7201
RES
Port2 命令發送請求



Documents / Resources

	KEYENCE iO-GRID m and KV-Nano Series Modbus RTU Connection [pdf] Instruction Manual GFMS-RM01S, GFDI-RM01N, GFDO-RM01N, GFPS-0202, GFPS-0303, 0170-0101, iO-GRID m and KV-Nano Series, iO-GRID m and KV-Nano Series Modbus RTU Connection, Modbus RTU Connection, RTU Connection